

How to Use AI to Improve the Customer Experience

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Artificial intelligence will transform the customer experience through deeper understanding of customer behavior. Data and analytics leaders should engage with CX leaders to identify high-value use cases to drive innovation.

Key Challenges

- Customer experience is a high priority for analytics, with artificial intelligence (AI) the latest element of analytics to be applied to it. Many organizations struggle to identify the best use cases for AI pilots and to quantify the business value AI will bring.
- AI creates unique risks and intensifies others, especially in the area of new customer data privacy rules, bias on outcomes, algorithms and business rules behind decisions.
- Employees are worried about possible job loss and whether they can trust AI results.

Recommendations

To modernize analytics and business intelligence strategies for customer experience, data and analytics leaders should:

- Choose, as a starting point, customer experience use cases that have been proven to bring value to organizations, thereby ensuring access to high-quality customer data for the analysis.
- Reduce project risk by extending data privacy policies to address customers' AI concerns.
- Position AI as a performance improver/decision augments by focusing on areas where AI can enhance employee performance rather than replace employees.

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Strategic Planning Assumptions

By 2021, 15% of all customer service interactions will be completely handled by AI, an increase of 400% from 2017.

Starting in 2020, AI will be a positive net job creator — eliminating 1.8 million jobs while creating 2.3 million.

Introduction

The goal of improving the customer experience (CX) and thereby customer satisfaction, loyalty and advocacy is a leading candidate for investments in artificial intelligence (AI) for improved, personalized experiences that recognize customers, know them and then anticipate their needs. AI is a collection of technologies and techniques such as machine learning and deep learning that classify and predict — faster, more variously and in greater volume than humans without AI.

Through 2020, AI use cases supporting CX are forecast to deliver the most business value, followed by new revenue growth thereafter (see "Forecast: The Business Value of Artificial Intelligence, Worldwide, 2017-2025"). Forward-looking data and analytics leaders already reap benefits from AI in a wide range of ways, the most prevalent of which will be:

1. **Improved predictions** — Increasing relevancy and personalization by analyzing high data volumes along with contextual data to provide recommendations and advice.
2. **More accurate decisions** — Improving decisions by processing large volumes of data faster, and by providing the most relevant actions at the right moment with retrained models that improve with each iteration.
3. **Enhanced understanding through conversational interfaces and augmented analytics** — Natural-language processing (NLP) with interfaces such as chatbots in call centers or personal

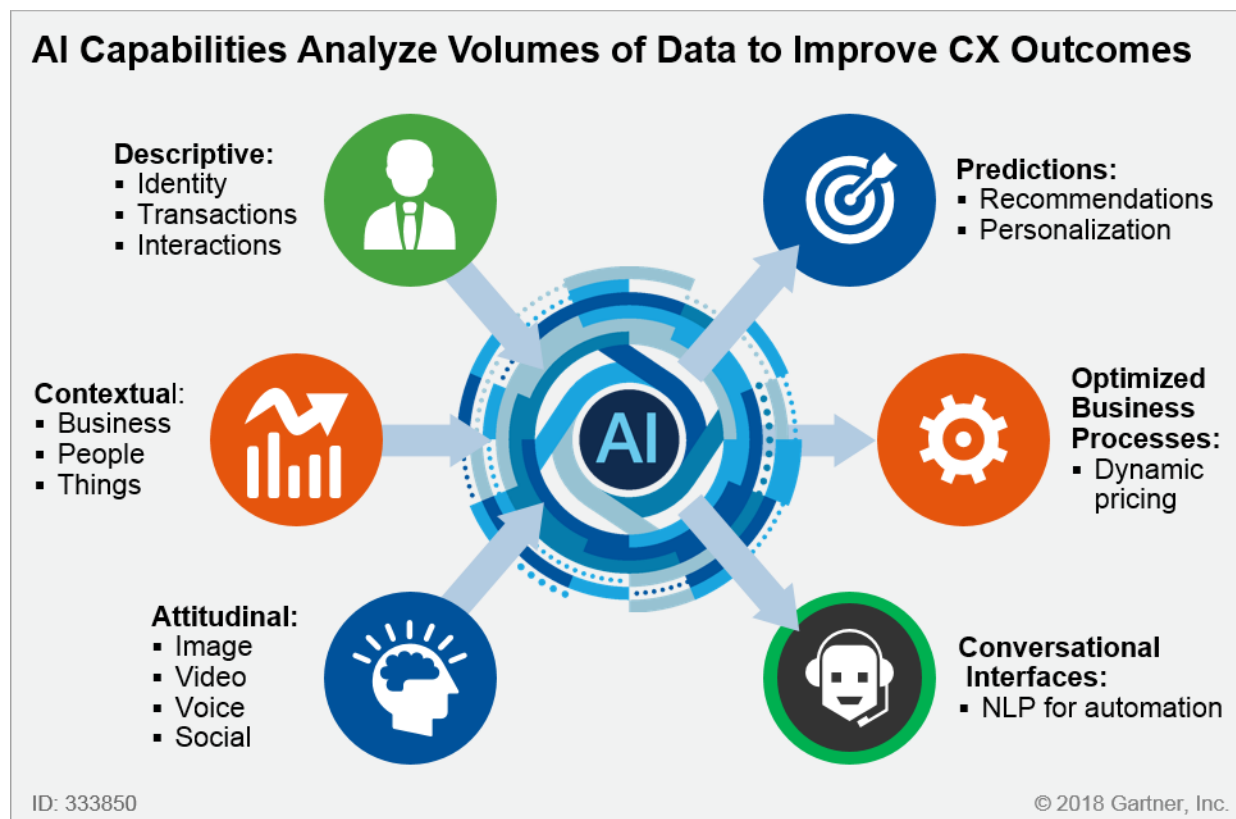
digital assistants, by using text or voice to analyze language and communicate with users. A model is continuously improved by learning from conversations it has with people.

Many organizations have been augmenting their existing descriptive, transactional and behavioral customer data with contextual and situational data — such as Internet of Things (IoT), geolocation, video, voice and social — and generating insights that they were not able to before. AI goes further. It can be used in many different ways to improve the customer experience by analyzing higher volumes of multiple types of customer data (see bulleted list below) to produce faster outcomes that improve with each iteration when retrained with new data:

- **Descriptive** — Customer demographics, purchases and interactions
- **Contextual** — From people (journeys, life events, searches, sentiment); from devices and things (location, sensors, mobile devices); and from organizations (weather, open data, third-party events)
- **Attitudinal** — Social, audio, video, preferences, options and attitudes

AI technologies have made it easier to spot the trends buried in data, with the ability to learn, enhancing technologies such NLP to analyze word choice that provides a deeper level of psychological insight. Understanding how the customer interprets issues and makes decisions can be very powerful in improving the customer experience (see Figure 1).

Figure 1. Customer Experience Data and Outcomes



Source: Gartner (April 2018)

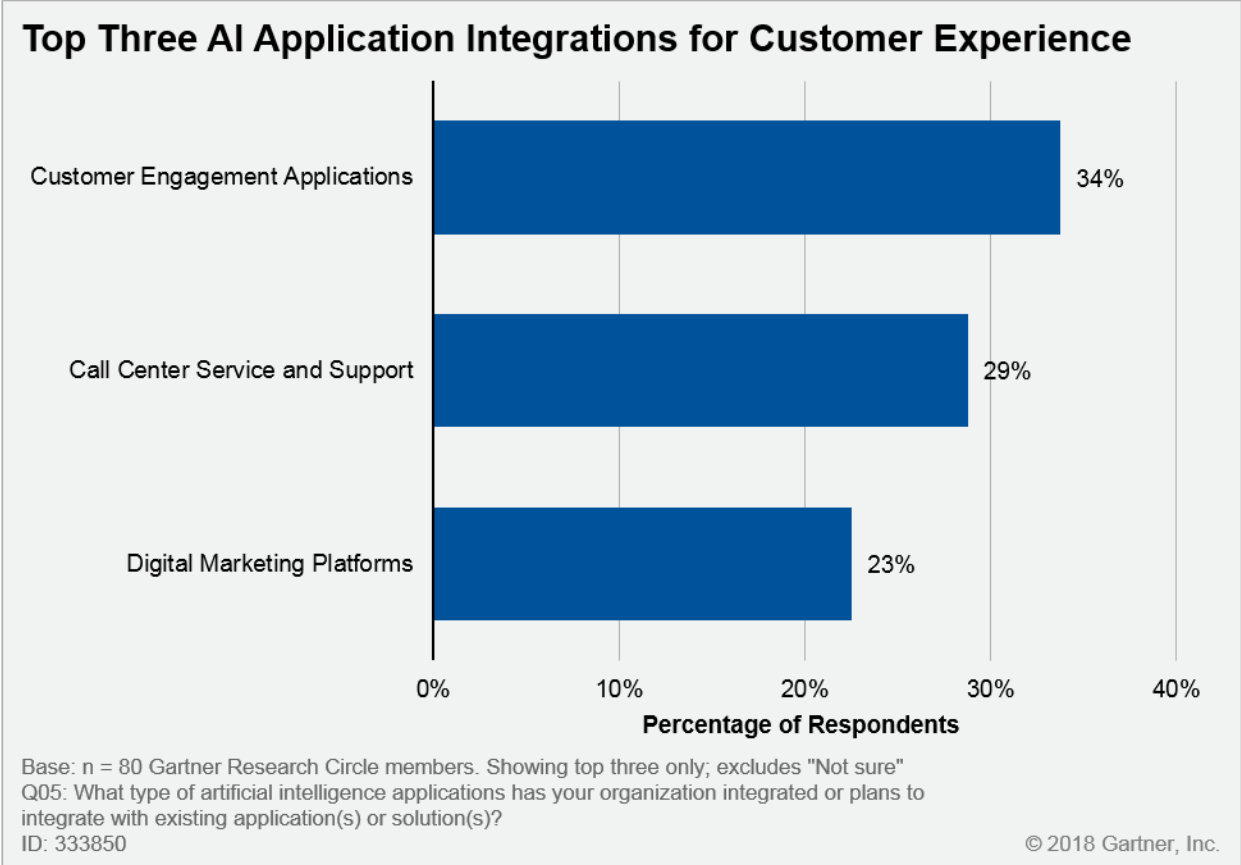
While its adoption is still early, the potential impact of AI can be transformational. Organizations must balance the hype about the promise of AI with the reality of optimizing and transforming their business to deliver real benefits.

Analysis

Identify and Map Top AI Use Cases to High-Priority Business Outcomes

Many large organizations are already committing resources to improving CX by leveraging AI. According to the Gartner Research Circle 2017 AI Development Strategies Survey (see Note 1), the top three applications of AI are all about customer experience (see Figure 2).

Figure 2. Top Three AI Application Integrations for Customer Experience

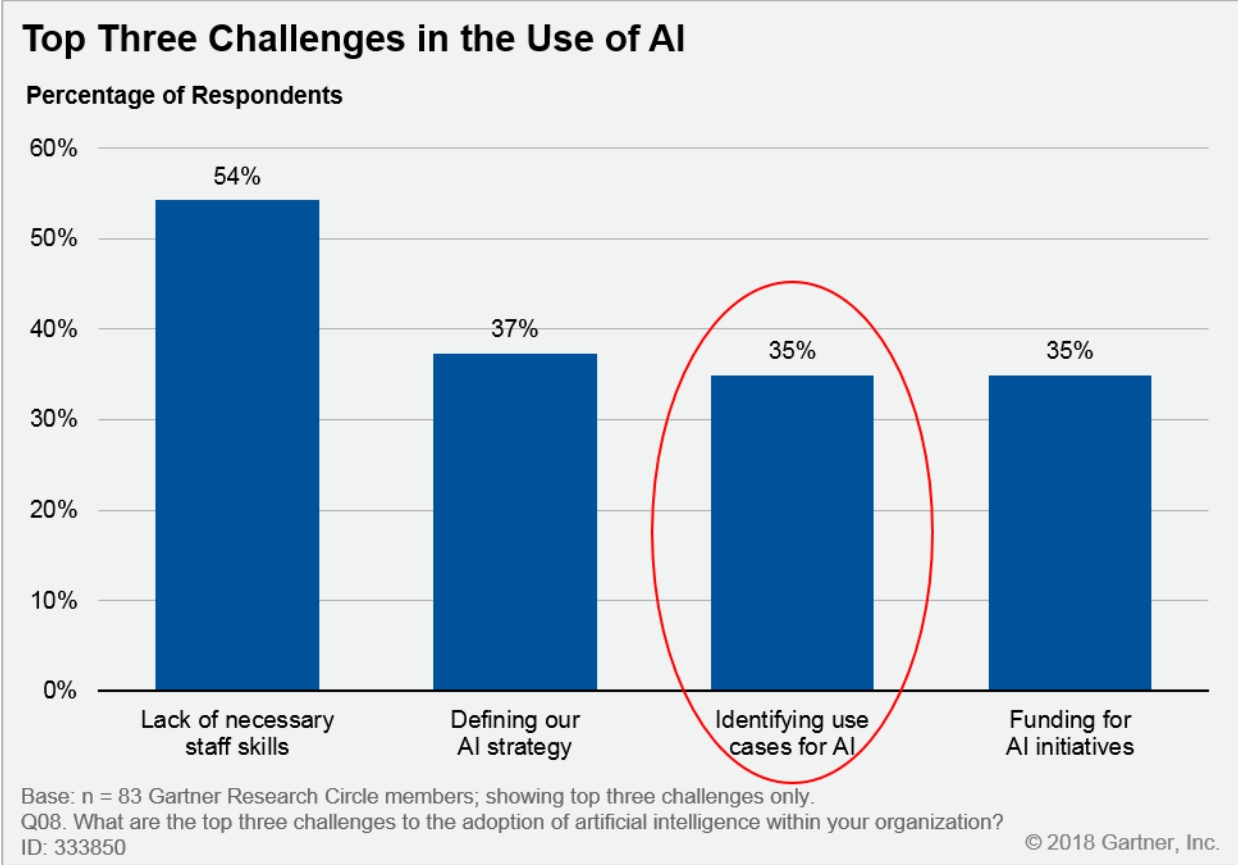


Source: Gartner (April 2018)

The same 2017 Gartner Research Circle survey found that just 6% of respondents had AI deployed or in use. However, 55% of respondents in Gartner's 2017 CX Innovation Survey said they expected to use machine learning (which is one form of AI) for CX projects within the next three years (see Note 2).

One of the top three challenges to adopting AI is difficulty in identifying use cases, as indicated by one-third of the respondents to our Gartner Research Circle survey (see Figure 3).

Figure 3. The Top Three Challenges in the Use of AI



Source: Gartner (April 2018)

To overcome the challenge of use-case selection, first focus on use cases that have already been proven by other organizations to deliver business value, starting with the most live production implementations.

Figure 4 shows the most common use cases for AI for CX, and the category of benefit that each delivers for CX. This is not an exhaustive list of all potential CX use cases, rather, a list of use cases that show the most promise. Use this to select the first round of use cases that will deliver the most value to your organization. A selection of AI implementation examples follows Figure 4.

Figure 4. Finding the Customer Experience Use Cases for AI

Finding the Customer Experience Use Cases for AI

	Use Cases	Description	Business Outcomes		
			New Revenue	Cost Optimization	Customer Experience Improvement
	Conversational Interfaces	Natural-language processing (NLP) that enables people to have increasingly conversational experiences with computers through text and voice. Chatbots and NLP simulate conversations to deliver information and, if advanced, take action on behalf of the customer to perform transactions.		1	2
	Real-Time Personalization — content, offers, products	Context, intent and journey stage analyzed to inform the delivery of personalized content, offers and promotions and products, using propensity modeling, machine learning and NLP.	1		2
	Dynamic Pricing	Machine learning to correlate pricing trends with sales trends; adjusting prices according to changing customer behavior, location, product inventories and other factors.	1		
	Audience and Customer Segmentation	Machine learning segmentation that groups users into clusters based on the commonalities they share, revealing patterns and relationships.		1	
	Predictive Sales Leads	Scores customers' likelihood of converting based on third-party and company data, thus allowing sales reps to prioritize leads.	1		
	Sentiment Analysis	Use of NLP, text analytics and biometrics to identify, extract, quantify and analyze opinions and emotions. Typical use cases found in social and voice of the customer (VoC) analytics.	3	2	1
	Knowledge Base Creation	Machine learning and NLP algorithms that automate message classifications and propose new content creation in the call center.		1	2
	Sales Forecasting	Automated and more accurate sales forecasts based on transactions, other factors and engagement with opportunities, such as email and calendar data.	1		
	Customer Journey Orchestration	Personalized content and offers based on a customer's journey stage. Correlates activities and attributes across channels and devices to identify the customer — considering data such as device ID, MAC address, browsing, call logs, app usage, locations, social media, transactions, and other data.	2		1
	Automatic Content Creation	Natural-language generation (NLG) technologies that identify the most relevant insights and context in data to automatically produce personalized narratives for each user in his or her context.		2	1
	Visual Search	Machine learning and deep learning technologies focused on image recognition for image-based product search and recommendations.		2	1

Business outcome ranking: 1st, 2nd, 3rd
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Source: Gartner (April 2018)

Implementation examples:

Conversational interfaces/chatbots — A European bank reduced inbound customer service calls by more than 50%, created more personalized experiences and reduced the time customers spent waiting for answers to questions. It deployed an NLP-based virtual customer assistant (VCA) that aligned online chat with the call center. The VCA assisted customers with information searches and basic transactions, such directing customers to appropriate links or forms, as well as providing call center agents with an answer engine to respond to customer questions more quickly.

Audience and customer segmentation — A transportation company doubled its sales volume during a campaign and increased sales leads significantly by leveraging AI to learn and adapt to changing conditions and high volumes of data such as weather and click rates. Analysis of outcomes and actions included identifying unknown audiences, proposing creative and messaging combinations and prioritizing the optimal channel for distribution.

Knowledge base for customer-facing workers — A local government reduced customer service response times by 50% and increased customer satisfaction by predictive case intelligence. Automated answers were generated by AI so that when an agent receives a new question, they are presented with an AI-suggested response to save time. The models were trained on historical logs using a deep learning algorithm.

Run Pilot Projects for the Top One or Two Cases

First, establish a cross-functional team consisting of CX domain leaders from marketing, sales, customer service, operations and IT, and your chief data officer (CDO) to identify the business opportunities. Include business analysts who are close enough to the pulse of the business to find the opportunities and to demonstrate curiosity about the how the analysis can improve CX.

Second, develop a set of key performance indicators (KPIs) that align with corporate goals such as new revenue, cost optimization, and customer experience improvements that impact customer satisfaction, customer loyalty and advocacy. It is important that the AI initiative is treated as a business implementation and not a "shiny" new technology object with no business value attached to the outcome. Define the financial business outcomes aligned with metrics and identify the few most relevant CX metrics to measure and validate the business outcomes (see "How to Manage Customer Experience Metrics").

Third, identify opportunities for AI, based on the CX gaps in your organization. A useful method for finding the biggest opportunities for your organization is to undertake customer journey mapping in order to learn the areas of disconnect and dissatisfaction across high-value/high-volume customer journeys. Through linking together a series of customer interactions, you can understand what the customer was trying to achieve and ensure that your processes are designed to make that goal as easy to achieve as possible.

Particular elements to look at are repeated activities such as multiple calls to a service desk or revisiting the same page on a website, transitions from one channel to another, and customer cancellations.

Fourth, issues that especially lend themselves to the benefits and value that AI can deliver:

- Repetitive tasks that can be automated, such as data mining for trends, patterns and outliers in the data
- Tasks that consume high volumes of data, such as analyzing customer emails in a call center to determine relevant responses, or dynamic pricing based on multiple variables
- Opportunities to respond to the customer in a contextual manner in real time, such as enticing a customer to purchase on a website based on an instantaneous personalized offer that knows the customer's intent and predicts the best response

Fifth, prioritize use cases that address the business needs at your organization by using the following criteria:

- Proven use cases with delivered outcomes
- Business value of the outcome aligned with the organization's business goals, with relevant success measures in place such as revenue increase, cost reduction, CX improvement
- Data is readily available for the use case
- Business leaders' willingness to sponsor

Start with the least complex task where you have the most complete data. It may take several iterations of training data for the best result. The objective is to learn from the pilots in order to influence your longer-term roadmap.

Extend Data Privacy Policies to Address Customers' AI Concerns

AI introduces or increases a range of risks to the CX and the business; two of which are particularly important.

- AI provides more granular insights into customers by uncovering patterns in data that are too complex for humans to uncover. The impending EU General Data Protection Regulation (GDPR) will require organizations to evaluate, justify and document why they are collecting and processing customer data.¹ Initiatives such as the GDPR limit what organizations can do with data and analytics on personal information. Examples include how and when customers can be classified and profiled, and what actions can or cannot be taken by the organization based on that profile (see "GDPR Clarity: 19 Frequently Asked Questions Answered"). AI capabilities are expressly intended to improve classification, prediction and actions based on those outcomes.
- Clear, transparent and accessible information on how you process personal data will lead to improved CX in your organization (see "Modern Privacy Regulations Could Sever or Strengthen Your Ties With Customers"). Take the opportunity to understand how customer data can drive value (see "Why Privacy Is an Opportunity to Drive Data Value").

Confirm that bias does not lurk in your data and algorithms, to ensure fairness and protect your brand reputation; avoid discrimination in machine learning.²

Recommendations:

- Keep in eye on regulations such as the GDPR to make sure you are compliant, by:
 - Putting in place a process to explain how the AI algorithm came to a decision. For example, what the algorithm was designed to do and the core rules it used to make a decision
 - Checking for bias in the data the AI algorithm it is trained on by having checks and balances for when the bias appears; don't assume that this will not happen

Position AI as a Performance Improver/Augmenter for Employees, not as a Competitor

No drones or driverless vehicles for delivering packages — that's one of the major 2018 demands from the U.S. Teamsters labor union in the big contract negotiation it's undertaking with UPS.³ Employee concerns about job displacement must be addressed to build a high degree of trust between employee and machine.

While the reality is that a small percentage of jobs will be eliminated, the majority of employees will eventually have some tasks in their job impacted by AI. It is important to provide guidelines for employee engagement, and guidance on the benefits to the employees, to minimize their concerns:

AI can augment analysis through analyzing volumes of data not humanly possible; it is rarely a complete replacement for human decision making. In the majority of cases, the benefit will come from optimizing human decisions and actions. Business benefits and examples include:

- More business value will be created through augmenting human decision making, rather than replacing humans (see "Predicts 2018: AI and the Future of Work").

An example is a sales manager who asks for an analysis of sales or the sales pipeline, who could be provided with an explanation or narrative of the statistically important drivers of change, complete with trends, patterns or outliers.

AI will not reduce the need for human touch in CX, as demonstrated by:

- Delivering relevant answers to customer-facing workers so they can provide a personalized service. Updating knowledge bases, if there are wider issues that need to be responded to, and warning customers of problems before they are even aware of them.

The key is to balance the human touch and technology in order to maximize efficiency while still providing a personalized service

Recommendations:

- Evangelize AI with your employees by focusing on the areas where AI can enhance employee performance rather replacing employees, in order to reduce suspicion and increase adoption.
- Provide them with examples of new knowledge bases and automated workflows and, by inclusion in pilots, demonstrate how they can do their jobs better and faster with the new insights from augmented analytics.

Acronym Key and Glossary Terms

AI	artificial intelligence
NLP	natural-language processing
VCA	virtual customer assistant

Gartner Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Forecast: The Business Value of Artificial Intelligence, Worldwide, 2017-2025"

"Craft an Artificial Intelligence Strategy: A Gartner Trend Insight Report"

"Artificial Intelligence Requires IT Leadership to Use Genuine Empathy"

"Seek Diversity of People, Data and Algorithms to Keep AI Honest"

"Maverick* Research: The Disappearing Customer"

"Modern Privacy Regulations Could Sever or Strengthen Your Ties With Customers"

"Seven Decision Points for Success With Virtual Customer Assistants"

"Augmented Analytics Is the Future of Data and Analytics"

"Questions to Ask Vendors That Say They Have 'Artificial Intelligence'"

"Information as a Second Language: Enabling Data Literacy for Digital Society"

Evidence

Based on Gartner primary research, analysis of hundreds of use cases provided through client inquiries and client interactions at Gartner data and analytics events, and from vendors.

¹ The [EU General Data Protection Regulation \(GDPR\)](#); enforceable from 25 May 2018. Regulation (EU) 2016/679, is a regulation by which the [European Parliament](#), the [Council of the European Union](#) and the [European Commission](#) intend to strengthen and unify [data protection](#) for all individuals within the [European Union](#) (EU). It also addresses the export of personal data outside the EU.

² See "[How to Prevent Discriminatory Outcomes in Machine Learning.](#)" World Economic Forum. Practical guidelines on how to avoid discrimination in machine learning.

³ "[Union Heavyweight Wants to Ban UPS From Using Drones or Driverless Vehicles.](#)" CNBC.

Note 1 The 2017 Gartner AI Development Strategies Survey

The Gartner AI Development Strategies Survey was conducted via an online survey from 5 April to 21 April 2017 among Gartner Research Circle members — a Gartner-managed panel composed of IT and business leaders. Gartner Research Circle IT and IT-Business members were invited to participate. In total, 83 members completed the survey.

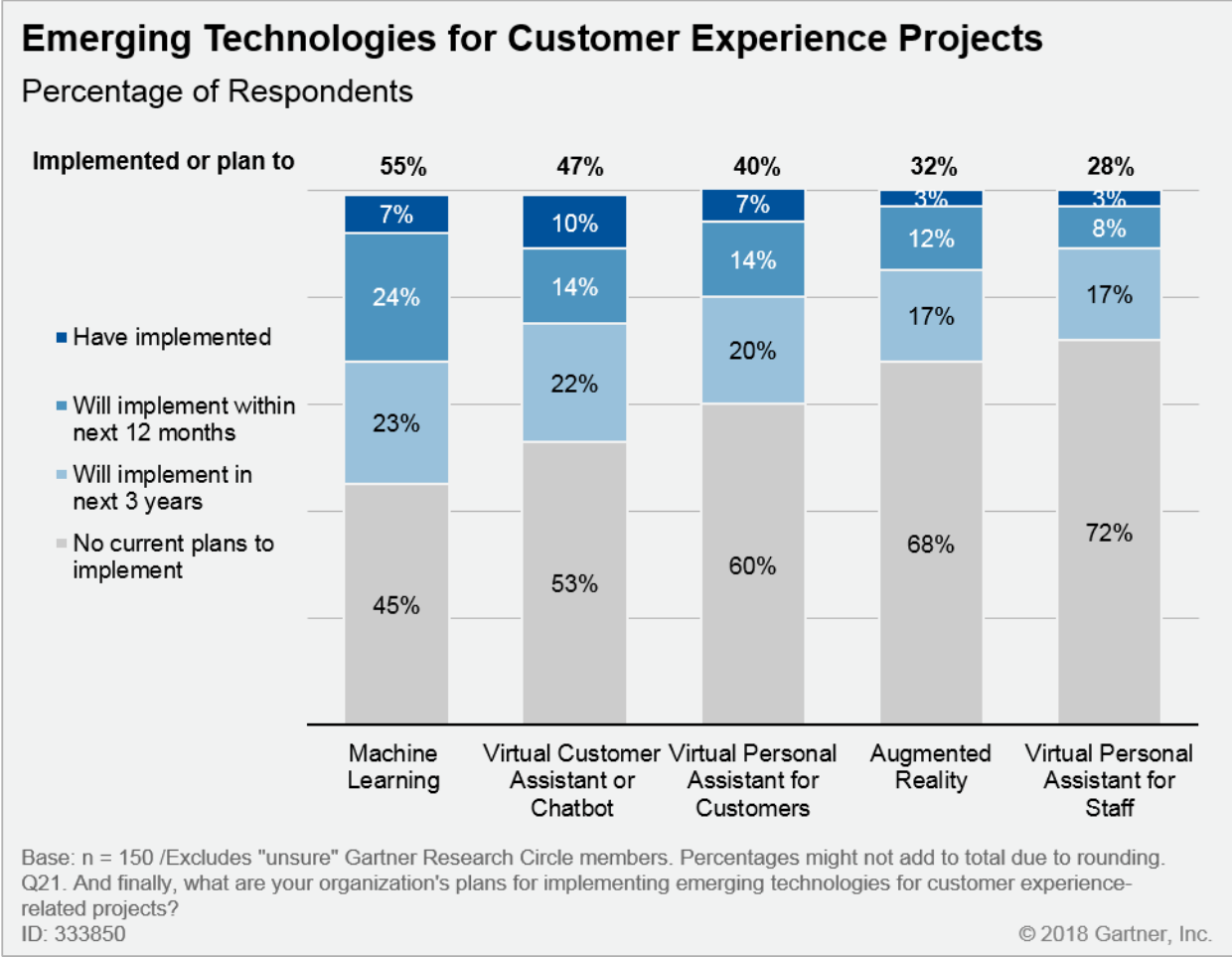
The survey was developed collaboratively by a team of Gartner analysts, and was reviewed, tested and administered by Gartner's Primary Research team.

The results of this study are representative of the respondent base and not necessarily of the market as a whole.

Note 2 The 2017 Gartner Customer Experience Innovation Study

The 2017 Gartner Customer Experience Innovation Study was conducted by online survey in February 2017. A total of 165 IT and business leaders with responsibility for and knowledge of CX activities participated (see Figure 5). For the full report, see "Survey Analysis: Customer Experience Innovation 2017 — AI Now on the CX Map."

Figure 5. Plans for Emerging Technologies for Customer Experience Projects



Source: Gartner (April 2018)

More on This Topic

This is part of an in-depth collection of research. See the collection:

- Deliver Artificial Intelligence Business Value: A Gartner Trend Insight Report

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